

REMARKS

Claims 1-10 are now in the application. By this Amendment, claims 1 and 4 have been amended. Claim 1 has been amended to recite consists essentially of instead of comprises. Claim 4 has been amended into independent form. Support for the amendment to claim 4 is found at least at original claim 1. Claims 8-10 have been added. Support for claims 8-10 is found at least at original claims 2, 3, and 7, respectively. No new matter has been added.

Applicants appreciate the courtesies extended by Examiner Rioja to Applicants' representatives during the August 17, 2010 personal interview. The following remarks constitute Applicants' separate Statement of the Substance of Interview.

Claims 1-3, 5, 6, and 7 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,010,111 to Hahn et al.

Claim 1 recites, among other features, (i) a low molecular weight styrene copolymer and (ii) a high molecular standard polystyrene (GPPS). At least these features of independent claim 1 cannot reasonably be considered to be suggested in Hahn.

Hahn teaches, at col. 2, lines 10-19, that a polymerization carried out in the presence of regulators achieves a steep high-molecular weight edge of the molecular weight distribution curve. The molecular weight M_w of styrene polymers having a high expandibility in Hahn is of from 60,000 to 200,000, as taught at col. 1, line 67. Hahn further teaches, at col. 2, lines 20-24, that high expansion capacity can also be achieved if component (a) contains from 0.1 to 10% by weight of a styrene polymer having a mean molecular weight of from 500 to 5,000.

As appreciated by the Examiner, Hahn does not explicitly teach that the high-molecular weight component is polystyrene and that the low-molecular weight component is a copolymer. However, during the August 17 personal interview, Examiner Rioja stated that the low molecular weight component could be a copolymer and the high molecular weight component could be polystyrene. Specifically, Examiner Rioja stated that Hahn uses the term styrene polymer to encompass styrene copolymers as well as polystyrene.

Applicants' representatives noted that Hahn fails to direct a skilled artisan to select a polystyrene as the high-molecular weight component and a copolymer as the low molecular weight component. Specifically, the passages at col. 2, lines 20-24, is the only embodiment in Hahn directed at styrene polymer mixture between a high-molecular weight component and a low-molecular weight component.

At col. 2, lines 41-49, Hahn explicitly teaches a mixture of a polystyrene and a styrene-acrylonitrile copolymer, which results in foams having a high oil resistance. However, the same advantageous property is taught, at col. 2, lines 38-41, for a single styrene copolymer comprising the same total amount of acrylonitrile. Thus, there is no suggestion to provide a copolymer having a lower molecular weight because Hahn teaches that the comonomer has the same advantages if it is present within the same copolymer, which necessarily has the same molecular weight as the styrene copolymer.

Accordingly, Applicants respectfully submit that Hahn fails to suggest to select the styrene polymer to be a polystyrene for the high-molecular weight component and to be a styrene copolymer for the low-molecular weight component. Moreover, the Office Action failed to provide a proper rational or motivation as to why a skilled artisan would select the two components of the embodiment at col. 2, lines 20-24, to be a polystyrene and a styrene copolymer, let alone with the specific molecular weights recited in claim 1.

Specifically, the assertion at page 3, lines 7-10, of the Office Action that the presence of 0.5 to 5% of styrene copolymer comprising acrylonitrile in a mixture with polystyrene is associated with a reduction in foam shrinkage does not lead the skilled artisan to select the copolymer to have the molecular weight of the embodiment at col. 2, lines 20-24, which has a high expansion capability.

At the onset, the proposed improvement is already achieved according to Hahn by adding a copolymer of unspecified molecular weight. A skilled artisan would assume that the copolymer has the same weight as the polystyrene because Hahn teaches that styrene polymers, i.e., copolymer and polystyrene, have a weight of from 60,000 to 200,000. Moreover, the same

advantages are achieved by a single copolymer having the same total content of acrylonitrile as the mixture of polystyrene and the copolymer. However, the single copolymer has a same mean molecular weight.

In conjunction with interpreting 35 U.S.C. §103(a) under *Graham v. John Deere*, 383 U.S. 1, 148 U.S.P.Q. 459 (1966) and *KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007), the initial burden is on the Examiner to provide some apparent reason or suggestion of the desirability of doing what Applicants did, i.e. the Examiner must establish a *prima facie* case of obviousness. To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention, or the Examiner must present a convincing line of reasoning as to why a skilled artisan would have found the claimed invention to have been obvious in light of the teachings of the references.

The mere fact that cited art may be modified in the manner suggested in the Office Action does not make the modification obvious, unless the cited art suggests the desirability of the modification or impliedly suggests the claimed invention, or the Examiner has presented a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the applied citation.

No suggestion to combine the citations in the manner suggested appears in the cited art in this matter nor has a convincing line of reasoning been presented in this case. The Office's attention is kindly directed to *KSR Int'l Co. v. Teleflex, Inc.*, supra; *In re Dembiczak et al.* 50 USPQ2d. 1614 (Fed. Cir. 1999), *In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984), *In re Laskowski*, 10 USPQ2d. 1397 (Fed. Cir. 1989) and *In re Fritch*, 23 USPQ2d. 1780 (Fed. Cir. 1992).

Claim 4 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Hahn in view of EP 0 126 459 to Biglione et al.

Claim 4 recites, among other features, c) cooling the polymer melt comprising blowing agent to a temperature of at least 120°C, and d) discharge via a die plate with holes whose

diameter at the discharge from the die is at most 1.5 mm. At least these features cannot reasonably be considered to be suggested in Biglione

As discussed during the personal interview, Biglione suggests, at col. 4, lines 6-12, that after extrusion and cutting, the granules are cooled very slowly to a temperature below T_g . However, Biglione fails to suggest that the polymer melt is cooled and that subsequently the melt is extruded through a die and cut into granules.

Claims 2, 3, and 5-10 are in condition for allowance for at least their respective dependence on allowable claims 1 or 4, as well as for the separately patentable subject matter that each of claims 2, 3, and 5-10 recites.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 22-0185, under Order No. 12810-00264-US1 from which the undersigned is authorized to draw.

Dated: August 30, 2010

Respectfully submitted,

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